

ELK MANAGEMENT GUIDELINES

Procedure 1: To determine annual calf recruitment rates and bull to cow ratios

Fall Surveys:

- A. Standard population management zones are those areas identified by the Department through public process that have been traditionally occupied by elk and elk populations are expected to range during summer or yearlong. Winter-range population management zones are those areas where elk are expected to range during winter, but summer densities of elk should be low or nonexistent. Flexible population management zones allow management of elk populations to reduce or eliminate conflicts with other public, private or wildlife resources by maintaining population densities as deemed appropriate. Minimal occurrence population management zones are areas where elk should be at extremely low population densities.
- B. Within standard management zones, a fall survey will determine recruitment rates and herd composition. Field Operations personnel will conduct annual surveys in each standard management zone. Regional Game Specialists in Regions with elk will establish survey areas subject to meadow counts, spotlight counts, or other techniques, using a predetermined stratified random approach. Surveys shall be conducted by helicopter, fixed-wing aircraft, vehicle, horseback, or foot between August 10 and September 30. Surveys should be confined to the first and last 2-1/2 hours of daylight. Survey data obtained by these methods should be recorded separately, although all methods should be pooled to derive ratio data within a specific unit. Whenever possible, techniques should be used consistently among years.
- C. Elk observed will be classified as bulls (branched antlers), spikes, cows, and calves. Elk that cannot be positively classified will be recorded as "unclassified." Each group observed will be recorded as one observation as per Elk Survey Record Form. Incidental observations outside the survey period will not be included as survey data.
- D. Surveys should be designed to randomly sample populations in the primary elk summer range in each unit. Regional Game Specialists with Game Branch assistance will, with past years' survey information, determine desirable sample sizes and areas to obtain bull:cow:calf ratios of ± 5 at the 90% confidence level. These sample sizes can be estimated by using spreadsheets developed to calculate confidence intervals. Habitats may be stratified and sample effort expended in a preplanned random effort. Where insufficient herds are tallied to obtain reliable ratio estimates, additional survey effort may be expended or data may be pooled with adjacent units and areas having similar vegetation and hunt characteristics. Survey effort will sample the major population concentrations. Eventually, survey effort should be designed to sample individual herds as determined in Procedure 4.

- E. Conducting fall surveys within limited population management zones will only occur under special circumstances with justification.

Procedure 2: To collect data on the age classes and condition of harvested elk

- A. When the need for biological data or precise hunt success information is justified, field checks and/or hunt check stations will be used to sample populations in select areas. Station locations will be determined by the Big Game Supervisor and Regional Game Specialist. Operation of the check station will be the responsibility of the Regional Game Specialist. Assistance may be provided by Game Branch personnel.
- B. Elk may be weighed, aged, and examined for body condition, and any other pertinent data recorded (e.g., tooth solicitation [tooth collections and cementum aging should only be conducted when statistically reliable data can be obtained]). Data from each animal should be recorded on a multiple species check station card.
- C. The Game Branch will send hunt questionnaires to elk permit holders prior to the last day of their hunt. The questionnaire will be designed to obtain statistically sound harvest and hunt success data for hunt-units; confidence intervals will be calculated for harvest figures and hunt success. Supplemental questions or questionnaires may be sent to obtain information of particular management interest (e.g., tooth solicitation [tooth collections and cementum aging should only be conducted when statistically reliable data can be obtained]). In hunt-units with small permit numbers (<60), telephone interviews (conducted by the Wildlife Manager) may be used to determine success rates.
- D. Harvest and hunt success information will be sent to Regional Game Specialists within 60 days of the final questionnaire mailing. The collection, tabulation, and distribution of these data will be the responsibility of the Game Branch. Game Branch and regional personnel may do additional data analysis.

Procedure 3: To use survey, hunt, and forage use data to determine a prescribed annual harvest of elk in each hunt unit and formulate hunt regulations to accomplish that harvest

- A. Annual survey and hunt data will be summarized by Wildlife Managers and Regional Game Specialists as outlined in the Elk Management Summary Form 3026.
- B. Regional personnel will analyze survey and other data, determine a desired harvest per unit, and develop hunt recommendations to achieve that harvest. Antlerless harvests for each elk herd unit should maintain the herd size at levels consistent with the elk population objective described in the regional Elk Management Plans. Permit numbers to achieve the desired harvest will be calculated on the basis of past hunt success and hunter participation data. The allocation of archery, firearms, early and late season permits will be consistent with the Guidelines for Hunting Season Recommendations.

- C. Hunt recommendations will be made in conformance with the Guidelines for Hunting Season Recommendations.
- i. Antlerless elk will be harvested in accordance with specific elk population objectives described in the statewide Elk Management Plan.
 - ii. Bull permits should be decreased if pre-hunt calf:cow ratios are below 30:100 and/or pre-hunt bull:cow ratios are below 25:100. Bull permits should be increased if calf:cow ratios exceed 40:100 and/or bull:cow ratios exceed 35:100. Hunting opportunities should be maximized.
 - iii. Bull:cow ratios will not exceed 40:100 in Units 1, 9, 10, and 23 in accordance with regional Elk Management Plans.

Bull Permits should	Decrease	Stay the Same	Increase
Calves:100 Cows	Below 30	30 to 40	Above 40
Bulls:100 Cows	Below 25	25 to 35	Above 35
Hunt Success	Below 20	20 to 30	Above 30

- iv. At least six general early bull elk hunts will be offered annually; two each in Regions 1 and 2 and one each in Regions 3 and 6. At least six muzzleloader bull elk seasons will be offered annually; two each in Regions 1 and 2 and one each in Regions 3 and 6.
 - v. Population management hunts may be established to meet management objectives with goals, recommendations, or guidelines that were not met during regular seasons.
- D. Hunt unit recommendations and survey data must be submitted to the Game Branch for review in accordance with the Hunt Recommendations Guideline schedule.
- E. Regional personnel may determine herbaceous production and wildlife forage use in key areas in accordance with Department approved forage monitoring guidelines. When allowable use levels are exceeded, hunts should be developed to reduce elk populations to achieve desired use levels in subsequent years.

Procedure 4: To index elk population levels and estimate the size of particular populations

- A. Key summer and winter ranges for selected elk "herds" may be identified when needed by monitoring the movements of color-marked and radio-instrumented animals.
- B. Population indices will be derived from fall surveys. Regional personnel will model herd population levels and composition using preseason classification data, postseason population estimates, and hunt data. Summer and winter population densities will be calculated for each herd unit. These data will assist in determining the numbers and kinds of

animals to be removed each year, desired population levels, annual mortality rates, and key areas to be acquired.

- C. Post-hunt surveys index population levels. Field Operations personnel may conduct post-hunt surveys when need for the index is approved by Game Branch during years that allow for a survey when snow cover is available. Such surveys should be conducted by fixed-wing aircraft or helicopter between December 5 and March 15. If conducted, these surveys should use an approach that yields a population estimate such as simultaneous double-counts. Surveys should be conducted within representative units or subunits, which can be used to calibrate population models and make comparisons among years in which surveys are conducted. Elk concentrations too large for an accurate count may be photographed to assist counts. Surveys need not be conducted annually, but can be conducted periodically with multiple years between survey efforts. Methodology should remain standard within units and among years.
- D. Each group observed will be recorded as one observation on the Elk Survey Record Form.
- E. Post-hunt surveys may be used to identify the number of elk within limited population management zones. Prior approval must be granted by the Game Branch Chief and the Regional Supervisor.

Procedure 5: To maintain and enhance select summer range (meadows) and key wintering range sites as elk habitat

- A. Habitats of importance to major elk herds will be identified, rated, and ranked in importance. An attempt will be made to acquire important areas in private ownership and transfer them to AGFD or U.S. Government management. Acquisition may be through trade of state or Federal lands or by purchase through Federal Aid or donated funds
- B. Livestock grazing allotments within important elk areas may be evaluated for forage condition. Those areas in need of upgrading will be discussed with the appropriate land management agency. Wildlife forage use studies can be conducted to determine to what degree elk are contributing to the current range conditions. If elk forage use is unacceptable, then elk numbers will be adjusted downward until elk forage use declines to more acceptable levels. Such studies will be conducted in cooperation with the land management agency involved.

Procedure 6: To address elk depredations on private lands.

- A. Complaints of elk depredation will be investigated by Regional personnel as per ARS 17-239.
- B. When substantial elk depredations are documented, special efforts may be made to alleviate these problems (e.g., by fencing, by improving forage on adjacent public lands, Stewardship

agreements, or through harassment techniques). Where the above methods are impractical or prove inadequate, population management hunts may be authorized.

- C. Where depredation problems persist, an effort to acquire these lands may be made by the AGFD or Commission. These lands may be acquired through purchase, trade, or exchange.